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1: J Cell Biol. 1981 Sep;90(3):644-55.

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Human intrinsic factor secretion: immunocytochemical demonstration of membrane-associated vesicular transport in parietal cells.

Levine JS, Nakane PK, Allen RH.

The human gastric parietal cell synthesizes and secretes intrinsic factor (IF) α acid. In contrast to the cellular mechanisms of acid secretion, little is known about the mechanisms of IF secretion. To elucidate these mechanisms we obtained gastric secretions and sequential fundic biopsies from three subjects before and after pentagastrin stimulation (6 microgram/Kg s.c.). IF was localized in the biopsies using an ultrastructural immunoperoxidase technique using a well-characterized, monospecific antibody to human IF. IF output was quantified using a specific radioimmunoassay in concurrently obtained gastric secretions. Before stimulation, IF was associated with tubulovesicles scattered throughout the cytoplasm and with some in rough endoplasmic reticulum (RER). The tubulovesicles associated with IF migrated to the periphery of the secretory canaliculi within 8 min of stimulation. IF was present on secretory microvilli between 8 and 30 min when IF output in gastric juice was at its maximum. The cessation of IF secretion coincided with the depletion of IF associated with tubulovesicles. IF appeared in the perinuclear space and RER the IF associated with tubulovesicles was secreted. These observations indicate that IF secretion depends upon membrane-associated vesicular transport and provides support for a membrane translocation-fusion hypothesis to explain the morphologic changes that occur in the parietal cell during secretion.

PMID: 7287818 [PubMed - indexed for MEDLINE]

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